Xploring Twitter Event Signatures

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SCHOOL OF **ELECTRICAL** AND **INFORMATION** **ENGINEERING**

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How Are Real-World Events Reflected in Social Media Signals?

Elections Pattern of Interests

Normalised Pattern of Election Interest

- US Election 2020 twitter engagement
- US Election 2016 twitter engagement
- Election Day (2020 + 2016)
- Election Results (2020)
- Final Presidential Debate (2020)
- Election Results (2016)

Archetype

Election Social Media Archetype

- Trend
- Upper boundary
- Lower boundary
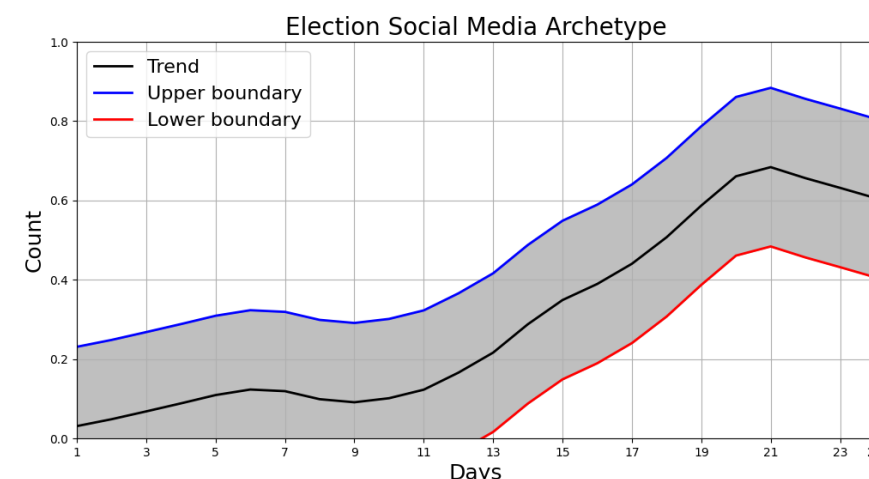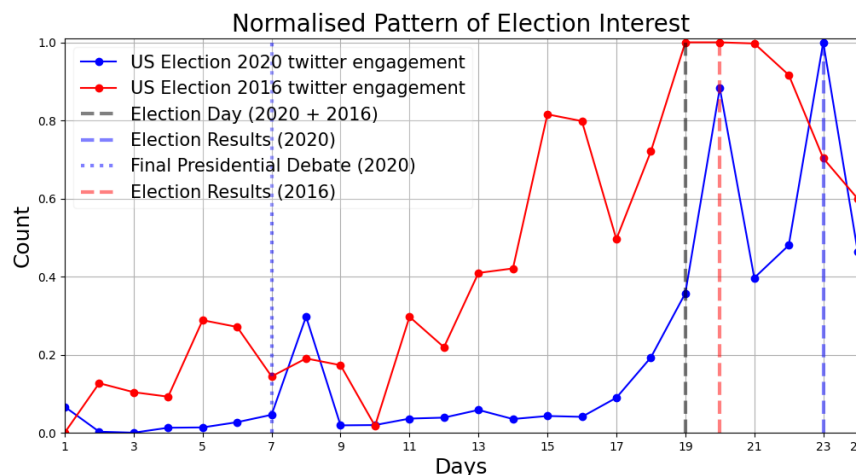
Additional Event Types Explored:

Protests

- South Africa 2021 Social Unrest
- Iran 2022 Mahsa Amini protests
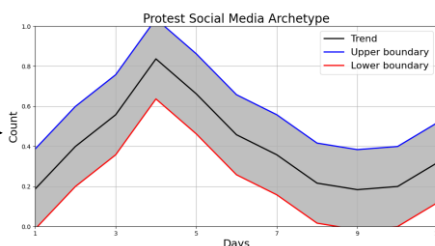
Natural Disaster

- Turkey-Syria 2023 Earthquake
- Mexico 2017 Earthquake

Protest Social Media Archetype

Natural Disaster Social Media Archetype
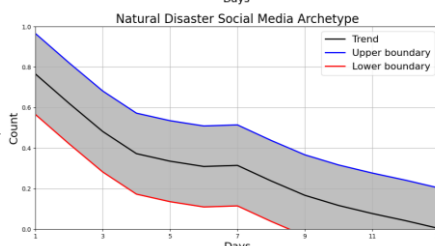
Work-Flow To Create Event Archetype:

Choose Event

- **Election**, **Protest** and **Natural Disaster**.

Gather Event Data

- Leveraged **Open-Source Tweet Databases**, processing through a Terabyte of data.
- Utilised **GDELT** through Google BigQuery to extract event-specific news articles.
- Through the **Mastodon API**, trend validation was explored.

Add Event Data

- Add further **Election**, **Protest** or **Natural Disaster** data.

Signature Analysis

- Uncover **Geo-Location** Map
- Compare Social Media and **News Response.**
- Validate trend with **Google Trends** and Mastodon API
- **Seasonal** Analysis and Decomposition

Create Archetypes

- **Regression Analysis** for Curve Approximation using LOESS regressions.
- **Similarity Metrics** for Event Patterns: Cosine Similarity, Euclidean Distance, and Correlation Coefficient.